What is claimed is:

1.   An apparatus for automatically switching an audio mode, the apparatus comprising:

a preprocessing part for collecting sample audio data in
5   advance, then analyzing a feature of the sample audio data and extracting features according to kinds of audios; and

an audio mode determining part for pattern-matching an input listening audio feature with the features according to the kinds of audios to determine the kind of the listening audio and
10   automatically switch the audio mode according to the determined audio kind.

2. The apparatus of claim 1, wherein the preprocessing part comprises:
15   a sample audio database for collecting and storing the sample audio data;

a first feature extracting part for extracting the features of the sample audio data stored in the sample audio database; and

an audio kinds sorting part for sorting the features of the
20   sample audio data extracted from the first feature extracting part according to preset audio kinds.

3.   The apparatus of claim 2, wherein the first feature extracting part extracts the features of the sample audio data by

14

using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

4. The apparatus of claim 2, wherein the audio kinds sorting part sorts the audio kinds by using either a learning model or a statistical model.

5. The apparatus of claim 1, wherein the audio mode determining part comprises:

a second feature extracting part for extracting the feature of the listening audio if the listening audio is inputted;

a pattern matching part for pattern-matching the feature of the listening audio with the features according to the kinds of audios sorted by the preprocessing part;

an audio sorting determining part for determining an audio kind that is the most similar to the feature of the listening audio from a result of the pattern-matching of the pattern-matching part; and

an audio mode switching part for automatically switching a current listening audio by using an audio mode of the audio kind determined from the audio sorting determining part.

6. The apparatus of claim 5, wherein the second feature

extracting part extracts the features of the listening audio by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

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7. The apparatus of claim 5, wherein the pattern-matching part utilizes any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neutral network method.

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8. A method for automatically switching audio mode, the method comprising the steps of:

(a) collecting sample audio data in advance, then analyzing a feature of the sample audio data and extracting features according to kinds of audios; and

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(b) if a listening audio is inputted, pattern-matching a feature of the listening audio with the features according to the kinds of audios in the step (a) to determine the kind of the listening audio and automatically switch the audio mode according to the determined audio kind.

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9. The method of claim 8, wherein the step (a) comprises the steps of:

collecting and storing the sample audio data;

16

extracting features of the stored sample audio data; and

sorting the features of the extracted sample audio data according to preset audio kinds.

5   10. The method of claim 9, wherein the extracting step is performed by any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

10   11. The method of claim 9, wherein the sorting step is performed by either a learning model or a statistical model.

       12. The method of claim 8, wherein the step (b) comprises the steps of:

15   extracting the feature of the listening audio if the listening audio is inputted;

       pattern-matching the feature of the listening audio with the features according to the kinds of audios sorted in the step (a);

20   determining an audio kind that is the most similar to the feature of the listening audio from the pattern-matching; and

       automatically switching a current listening audio by using an audio mode of the determined audio kind.

17

13. The method of claim 12, wherein the step of extracting the listening audio is performed by any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

14. The method of claim 12, wherein the pattern matching step is performed by using any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neutral network method.